

Endocervical Electrode

BACKGROUND OF THE INVENTION

This invention relates in general to an electrode and in particular to an electrode used for excision of the entire cervical canal.

Using electrodes to remove tissue from a human or other animal are known. A laser beam may be used in this process. When using such a beam, a guiding tubular structure can be employed to direct the beam to the desired location where it may be deflected by a deflection member. This action can allow the laser beam to sweep in a conical configuration. Another electro-surgical instrument used for excision of a tissue finds particular use in the transformation zone of the uterine cervix. In that particular instrument a stop arm is used.

Still another type of related instrument is referred to as a cone biopsy instrument and has a cuff of electrical insulating material, a core positioned within the cuff having an electrical conductor, a wire carrier of electrical insulating material with projecting arms, an electrically

conducting wire connected between a wire carrier arm and the core, an implant sleeve freely rotating on the swaged portion of the core between the wire carrier and tip, and a cervical guide tip of electrical insulating material carried on the core. Another type of instrument is entitled an endocervical conization electrode apparatus. This instrument is used for excising a tissue specimen from a uterine cervix having a substantially constant section. In that instrument an electrode is used for excising tissue and has an extension member.

Still another common type of electrode currently being used to remote tissue is the loop electrode excision procedure (LEEP). With the LEEP, loops of various shapes and sizes, at least nine, are used. These loops may be different sizes and semicircular in shape with different radiuses, or the loops may be rectangular in shape and different sizes. Specific sizes and shapes are employed depending on the depth of the tissue to be removed and the width of the removed tissue. The size and location of the tissue to be removed and the size of the patient's cervix are also factors considered in selecting the particular loop used in the LEEP.

In the present invention, one instrument is used to replace the many different sizes and shapes of cone biopsy electrodes for excision of tissue with various widths and depths of abnormalities, in the cervical canal. The electrode of the present invention removes the entire cervical canal, compared to a cone biopsy electrode which removes only part of the cervical canal. The electrode of the present invention also prevents lateral injury to the cervix, which is common with cone biopsy electrodes.

DESCRIPTION OF THE PRIOR ART

Using electrodes for excising tissue from a human or other animal is known in the prior art. For example, U.S. Patent 5,032,124 to **Menton** discloses an electrode for excising tissue which has a hollow tube through which a laser beam can be passed.

U.S. Patent 5,554,159 to **Fischer** discloses an electrode for excising tissue which has a stop arm which is positioned at a right angle to the electrode.

U.S. Patent 5,676,663 to **Kim** discloses an electrode for excising tissue which has a plurality of radially projecting arms.

U.S. Patent 5,951,550 to **Shirley et al.** discloses an electrode for excising tissue which has an extension member extending radially from the electrode.

The present invention is directed to an electrode for excision of tissue from the cervix and which can be rotated 360 degrees at one end, all as will be detailed in the specification that follows hereafter.

SUMMARY OF THE INVENTION

This invention relates to an electrode for the excision of tissue from the cervix. The electrode has a fine wire, at one end, which can be rotated 360 degrees thereby removing an entire lesion. This enables a single instrument to remove lesions, instead of using different sized instruments.

It is the primary object of the present invention to provide for an improved electrode for the excision of tissue.

Another object is to provide for such an electrode that is designed for use in the cervix and which allows different sized cervixes and different sized lesions to be treated with the same instrument.

These and other objects and advantages of the present invention will become apparent to readers from a consideration of the ensuing description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side view of the present invention.

Fig. 2 is a side view of the present invention in position inside the cervix.

Fig. 3 is a view of the lesion removed from the cervix.

Fig. 4 is a partial view of the electrode of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1 shows a side view of the present invention. The electrode has a handle **39** with a first end **38** and a second end **40**. A conducting wire **36** is attached to the handle **39** in any conventional manner. A means of conducting electricity to the wire **36** through the handle **39** will be provided, however, since this type of electricity providing device is conventional it is not shown in **Fig. 1** for purposes of clarity. The wire **36** is attached closer to the end **38** than to the end **40** so the user has enough room to grasp the handle and to manipulate the device. The wire **36** has two ends which are attached so a space **37** extends between the wire **36** and a surface of the handle **39**. the end of the wire closest to end **38** has an attachment means which is sloped to facilitate easy insertion into the cervical canal **27**. The opposite end does not have to be sloped since it will not, under normal conditions, enter the canal (see **Fig. 2**).

Fig. 2 shows the electrode in position inside the cervix **21**. In order to use the electrode the operator rotates the handle as shown by the arrows **BB** in a complete 360° circle. By rotating in a complete circle, the entire lesion can be removed in a single procedure. Also, by manipulating the device in a horizontal direction the operator can remove different size lesions with only one instrument. That is, different sized instruments will not have to be used for different sized lesions.

As shown in **Fig. 3** the use of the present invention on the cervical canal **27** will remove a circular plug shape **35**. The removal will occur in one simple procedure, and will be performed with a single instrument.

Fig. 4 shows a partial view of the end of the device of the present invention. As shown in **Fig. 4** the support for the wire or electrode **36** is triangular in cross-section in order to provide a strong

support for the electrode. The triangular shape will help prevent unwanted deflection of the electrode 36. Also, as shown in Figs. 1 and 4, the wire or electrode 36 is held parallel to the surface of the handle 39 which faces the electrode (or to the longitudinal axis of the handle). This position will be held due to the triangular shape of the electrode support. The parallel position of the electrode will produce the circular excision as shown at 35 in Fig. 3.

Although the preferred embodiment of the present invention and the method of using the same has been described in the foregoing specification with considerable details, it is to be understood that modifications may be made to the invention which do not exceed the scope of the appended claims and modified forms of the present invention done by others skilled in the art to which the invention pertains will be considered infringements of this invention when those modified forms fall within the claimed scope of this invention.

What I claim as my invention is: